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- (1.) A preservation solution for cells, tissues, and organs comprising a combination of polyglycerol and lactose in an amount effective to preserve said cells, tissues, and organs under hypothermic conditions.
- 2. The preservation solution of Claim 1 wherein said lactose is alpha lactose.
- 3. The preservation solution of Claim 1 wherein said polyglycerol is from n = 2 to n = 200 monomers.
- 4. The preservation solution of Claim 1 wherein said polyglycerol is decaglycerol or hexaglycerol.
- 5. The preservation solution of Claim 1 wherein said lactose is at a concentration from 11 mM to 250 mM.
- 6. The preservation solution of Claim 1 wherein said polyglycerol is at a concentration of 10 mOsm to 250 mOsm.
- 7. The solution of Claim 1, further comprising chondroitin sulfage.
- 8. The solution of Claim 7, wherein the concentration of chondroitin sulfate is on the order of 0.01% w/v to 1% w/v.
- 9. The solution of Claim 1, further comprising chlorpromazine.
- 10. The solution of Claim 9, wherein the concentration of chlorpromazine is about 1-50 micrograms/ml.
- 11. The solution of Claim 10, wherein the concentration of chlorpromazine is about 2-10 micrograms/ml.
- 12. The solution of Claim 1, further comprising calcium.
- 13. The solution of Claim 1, further comprising citrate.
- 14. The solution of Claim 1, further comprising glutathione.
- 15. The solution of Claim 1, further comprising a phosphate buffer.
 - 16. The solution of Claim 1, further comprising glucose.
 - 17. The solution of Claim 1, further comprising adenine.
 - 18. The solution of Claim 1, further comprising magnesium.
 - 19. The solution of Claim 1, wherein the solution has an osmolality of less than about 350 mOsm.

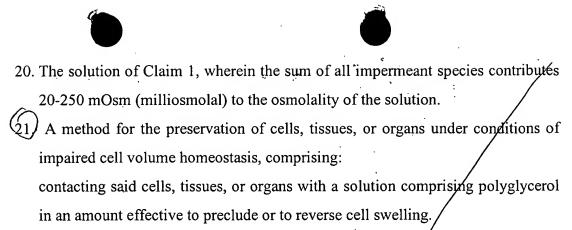
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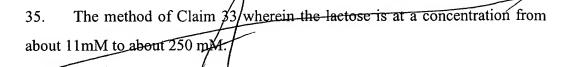
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- 22. The method of Claim 21 wherein said contacting is via intravenous or intraarterial administration.
- 23. The method of Claim 21 wherein said contacting is in vivo via arterial organ perfusion or retrograde venous perfusion of an organ or vascularized tissue.
- 24. The method of Claim 21 wherein said contacting is *in vitro* via arterial organ perfusion or retrograde venous perfusion of an organ or vascularized tissue.
- 25. The method of Claim 21 wherein said confacting is via the immersion of or bathing of affected cells, tissues, or organs.
- 26. The method of Claim 21 wherein said preservation solution further comprises lactose.
- 27. The method of Claim 21 wherein said polyglycerol is from n=2 to 200 monomer units in length.
- 28. The method of Claim 21 wherein said polyglycerol is tetraglycerol, hexaglycerol, or decaglycerol.
- 29. The method of Claim 21 wherein said polyglycerol is at a concentration of from about 20 mOsm to 1,500 mOsm when in contact with said cell, tissue, or organ.
- 30. The method of Claim 26 wherein said lactose is alpha lactose.
- 31. The method of Claim 21 wherein said effective amount is an isotonic solution.
- 32. The method of Claim 21 wherein said effective amount is a hypertonic solution.
- 33) A method for the preservation of cells, tissues, or organs under conditions of impaired cell volume homeostasis, comprising:
 contacting said cells, tissues, or organs with a solution comprising lactose in an amount effective to preclude or to reverse cell swelling.
- 34. / The method of Claim 33 wherein the lactose is alpha lactose.



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